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Dr. Bruce L. Freeman

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Texas Engineering Experiment Station
Department of Nuclear Engineering
College Station, Texas 77843-3133

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AFOSR DURIP-2000-1

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
Dr. Robert J. Barker
AFOSR/NE
801 N. Randolph Street, Room 732
Arlington, Virginia 22203-1977

10. SPONSOR/MONITOR'S ACRONYM(S)

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13. SUPPLEMENTARY NOTES

14. ABSTRACT

The requested image converter camera is a state-of-the-art camera that is able to capture frames as short as 5-10 ns with a resolution of 1,024x1,024 pixels. It will be primarily used on our AFOSR supported research program on explosive driven power generation. It may also be used to enhance research on the SpearTIP program, the ATLAS switch development project, and plasma focus studies. A critical aspect of our general research effort is the training of students, both at the undergraduate and graduate levels.

The total request from AFOSR was $160,000, with a matching grant from the Texas Engineering Experiment Station of $30,000. This grant will greatly enhance the Plasma Science/Pulsed Power research capability within the Nuclear Engineering Department at Texas A&M University. The proposed and actual equipment pricing information is presented.

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
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TEXAS A&M UNIVERSITY
College of Engineering
Department of Nuclear Engineering
3133 TAMU
College Station, Texas 77843-3133
(979) 845-4161 FAX (979) 845-6443

Nuclear Engineering
Health Physics

Safety Engineering
Industrial Hygiene

July 30, 2002

Dr. Robert Barker
AFOSR/NE
801 N. Randolph Street, Room 732
Arlington, Virginia 22203-1977

Dear Dr. Barker:

Please accept the final report for our DURIP 2000 grant, F49620-01-1-0246. This report documents that the purchase of the fast, image converter camera is completed. I believe that this camera will enable significant progress in several areas of our research effort at Texas A&M University. We are sincerely appreciative to the AFOSR and DDR&E for making this purchase possible.

Sincerely,

Bruce L. Freeman

Bruce L. Freeman
TEES Research Professor

Final Technical Report
On
Diagnostic Instrumentation

DURIP-2000

March 31,2002

Air Force Office of Scientific Research
Grant No. F49620-~~00-1-0275~~
01-1-0246

B. L. Freeman, Principal Investigator
Texas Engineering Experiment Station
Department of Nuclear Engineering
College Station, Texas 77843-3133

Attn: Robert Barker
AFOSR/NE
801 N. Randolph Street, Room 732
Arlington, Virginia 22203-1977

USE OF THE EQUIPMENT

The equipment that will be purchased with the funds provided by the DURIP grant ($154,211) will be used within the facilities that the Texas Engineering Experiment Station has provided ($160,000). The equipment and facilities will be used to support the following projects:

1. (MURI '98) Explosive-Driven Pulsed Power Generation
   AFOSR Grant No. F49620-97-1-0476
   Program to develop basic understanding for the science and technologies involved with explosive-driven magnetic flux compression generators.
1. SpearTIP Program (Air Force Research Laboratory/Eglin AFB)
   Program to develop technology elements that are necessary for the practical realization of the TedibeAr concept as a defeat for all weapons of mass destruction.
2. LANL Subcontract No. F9174-0018-2G
   ATLAS Rail-gap Switch Development
   Program to assist the Los Alamos National Laboratory with their program to build and make operational the ATLAS capacitor bank.
3. JPL Contract No. 1202983
   Plasma Focus Driven $^{11}B(p,\alpha)2\alpha$ Reactions
   Program to examine the possibility of using a plasma focus device to drive the $^{11}B(p,\alpha)2\alpha$ fusion reaction with a view toward application for deep space propulsion.

EQUIPMENT LISTS

The equipment originally proposed is listed in Table 1. Table 2 shows the equipment awarded for contract, based on bid results.

Table 1 – Equipment Originally Proposed

Item	Description	Qty	Price	Subtotal
1	**Hadland** Fast Image Converter Camera: Imacon 468 Contact Person: Frank Kosel Phone: 800-248-4686	1 ea.	$185,000.	$185,000.
	Total Cost			$185,000.

Table 2 – Equipment Purchased

Item	Description	Qty	Price	Subtotal
1	**OPSCI, Inc.** Fast Image Converter Camera Contact Person: Eric Howard Phone: 719-531-5230	1	189,995	189,995
	Total Cost			**$189,995**

The Hadland bid that was used for the proposal was not honored by Hadland at the time that we formally bid the camera under the DURIP grant. Thus, we had to make a decision concerning whether to proceed with the order of a much less capable unit or select a vendor who is not a well-known source. In the end, we elected to award the contract to OPSI, Inc. because their bid met our specifications and success on their

part provides a second vendor in the area of fast cameras who is also a US manufacturer. Further, the camera specifications are significantly superior to a Hadland camera costing much more than the OPSI bid. We are sincerely appreciative to the sponsor for this equipment procurement support.